

CLAIMS

What is claimed is:

- 5 1. A method for preparing a simulation of a system, comprising:
 - obtaining instructions representative of compiling a topology of said system and at least one relationship among a plurality of parameters of said system; and
 - executing said instructions by reading a data structure containing said plurality of parameters to create an intermediate representation representative of said system and

10 said plurality of parameters.

- 2. The method of claim 1, further comprising, after said obtaining step and before said executing step, the step of modifying at least one parameter contained in said data structure to create a modified parameter set, wherein said intermediate representation created in said executing step is representative of said modified parameter set.

- 3. The method of claim 2, wherein before said executing step, a topology corresponding to the modified parameter set is determined to match the topology corresponding to said step of obtaining instructions representative of compiling a topology.

20 topology.

- 4. The method of claim 3, wherein a checksum is used to determine said topology corresponding to the modified parameter set matches the topology corresponding to said step of obtaining instructions representative of compiling a topology.

5. The method of claim 2, wherein said modifying step can be performed by a user by directly editing said data structure.
6. The method of claim 1, wherein said executing step is performed after said 5 obtaining step without recompiling said topology.
7. The method of claim 1, further comprising, after said obtaining step and before said executing step, the step of creating code representative of said instructions.

10 8. The method of claim 7, wherein said code is in C language.

9. The method of claim 7, wherein said executing step comprises executing said code.

15 10. The method of claim 1, wherein said intermediate representation created in said executing step is in state-space form.

11. The method of claim 1, wherein said system is a multi-body physical system.

20 12. The method of claim 1, wherein said instructions are a sequence of steps.

13. A method for simulating a system, comprising:
reading a data structure editable by a user and having parameters corresponding to said system;

updating an intermediate representation containing information regarding a topology of said system and at least one relationship among said parameters; and executing a simulation of said system represented by the intermediate representation.

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14. The method of claim 13, wherein said updating step and said executing step are performed without recompiling after a content of said data structure is modified by said user.

10 15. The method of claim 13, further comprising the steps of:
modifying a content of said data structure to form an updated data structure;
updating said intermediate representation to form an updated intermediate representation to correspond to said topology and said updated data structure; and
wherein said step of executing a simulation utilizes said updated intermediate representation as representative of said system without a need to recompile.

15 16. The method of claim 15, wherein said modifying step is performed by said user.
17. The method of claim 13, wherein before said executing step, a topology
20 corresponding to said updated data structure is determined to match the topology corresponding to said data structure.

18. The method of claim 17, wherein said topology corresponding to said updated data structure is determined to match said topology corresponding to said data structure
25 by the use of a checksum.

19. The method of claim 13, wherein said intermediate representation is in state-space form.
- 5 20. The method of claim 13, wherein said data structure is in quadruple form.
21. The method of claim 13, wherein said system is a multi-body physical system.
22. An interpreter for use with data associated with a system, said interpreter adapted
10 to perform a method comprising:
 - reading a data structure containing said parameters corresponding to said system;
 - and
 - executing a previously obtained instructions representative of compiling a topology of said system and at least one relationship among said parameters into an
15 intermediate representation representative of said system.
23. The interpreter of claim 22, wherein said system is a multi-body physical system.
24. A medium holding electronic device executable steps for a method, said method
20 comprising the steps of:
 - obtaining instructions representative of compiling a topology of said system and at least one relationship among a plurality of parameters of said system; and
 - executing said instructions, reading a data structure containing said plurality of parameters to create an intermediate representation representative of said system and
25 said plurality of parameters.

25. The method of claim 24, further comprising, after said obtaining step and before said executing step, the step of modifying at least one parameter contained in said data structure to create a modified parameter set, wherein said intermediate representation
5 created in said executing step is representative of said modified parameter set.

26. The method of claim 24, wherein said system is a multi-body physical system.